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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,808	11/24/2003	Kwan-Yeob Chae	SAM-0490	5427

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EXAMINER	
KING, JUSTIN	

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/720,808	CHAE, KWAN-YEOB	
	Examiner	Art Unit	
	Justin I. King	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Application discloses the acronym "HPRIF", but the Application does not state what the acronym stands for. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 1, 3, 5, and 7 recite the limitation "pointer information". The claimed limitation is indefinite because the limitation merely states "to give the highest priority to a bus master in response to pointer information"; the limitation fails to particularly point out what this pointer information is representing and how to response to different pointer information. Claims 2, 4, 6, and 8 are rejected because they incorporate the limitations of the parent claims 1 and 5.

5. Claims 2 and 6 recite the limitation "weight" in claim 2's third line and claim 6's 2nd line. There are insufficient antecedent bases for this limitation in the claims, and it is indefinite that what the weight is referring to and how the weight is referred.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (U.S. Patent No. 5,583,999) in view of the pointer practice in programming practice taught by "C++ Primer" authored by Stanley Lippman.

Referring to claims 1 and 5: Sato discloses a bus arbiter supporting both fixed priority mode and round robin (figure 13, steps 206, 207, and 211 support both fixed priority and round robin). Sato discloses priority-determining units with registers (figure 14), and Sato's priority-determining units store the priority information in the registers. Sato's priority-determining units determine the priority of the bus request based on either round robin or linear method (column 1, lines 35-39), the priority-determining units move each bus request's priority information to the next higher level after each time of completing one bus request, and then output the new changed priority information and grant the bus to the request with the highest priority. The function of the priority-determining units' priority updating is equivalent to the claimed rotating unit.

Sato discloses that the priority-determining units prioritize the bus with respect to the individual bus masters (column 1, lines 35-36); such function is equivalent to the claimed request-reordering unit.

Sato's priority-determining units select the request according to the priorities (figure 13, steps 207 and 211); the selecting function is equivalent to the claimed request-selecting unit.

Sato discloses a grant-reodering unit, which outputs the bus grant signal to the bus (figure 13, step 209, figure 14, structure 12).

Sato does not explicitly disclose the practice of a pointer. Lippman discloses that the pointer is a commonly known programming practice. Lippman teaches one to enhance the system performance by managing the allocated objects dynamically rather than statically during execution. Lippman discloses that a pointer holds the value that is the address of an object in memory; thus, an object can be referenced indirectly and dynamically; therefore, the system can reference to any new value by address instead of updating value in a static object.

Hence, it would have been obvious to one having ordinary skill in the computer art to adapt Lippman's teaching onto Sato at the time Applicant made the invention because Lippman teaches one to dynamically manage the data object during execution.

Referring to claims 2 and 6: Sato discloses the round robin algorithm (figure 13, step 211); wherein the round robin grants the bus to each request in turn.

Referring to claims 3 and 7: Sato discloses the linear method (figure 13, step 207), which does not change the priority associated with each bus master.

Referring to claims 4 and 8: Sato discloses the round robin algorithm (figure 13, step 211); wherein the round robin grants the bus to each request in turn, and moves the priority of

the next bus request to the highest. Thus, Sato discloses a period of the periodic change is the time period corresponding to when the bus master grant signal of the highest priority is output.

9. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of the Sato.

Referring to claims 1 and 5: The admitted prior art discloses a request-reordering unit, a request-selecting unit, and a grant-reordering unit (figures 1-3). The admitted prior art discloses that the pointer is known practice (figures 2, S220, and figure 3, S310 and S320). The admitted prior art discloses a rotating unit determining the priority (figure 2, S210, figure 3, S310) with registers storing priority information (figure 2, HPRIF), and the practice of pointer information for pointing priority (figure 3, S310). The admitted prior art does not explicitly disclose a combined rotating unit for both fixed priority and round-robin algorithm.

Sato discloses a bus arbiter supporting both fixed priority mode and round robin (figure 13, steps 206, 207, and 211 support both fixed priority and round robin). Sato discloses priority-determining units with registers (figure 14), and Sato's priority-determining units store the priority information in the registers. Sato's priority-determining units determine the priority of the bus request based on either round robin or linear method (column 1, lines 35-39), the priority-determining units move each bus request's priority information to the next higher level after each time of completing one bus request, and then output the new changed priority information and grant the bus to the request with the highest priority. The function of the priority-determining units' priority updating is equivalent to the claimed rotating unit.

Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Sato's teaching onto the admitted prior art because Sato teaches one to accommodate both the linear method and round-robin algorithm within one arbiter structure (figures 13 and 14) and to reduce the circuit complexity by sharing components between both the linear method and round-robin algorithm.

Referring to claims 2 and 6: Both the admitted prior art and Sato disclose the round robin algorithm (figure 13, step 211); wherein the round robin grants the bus to each request in turn.

Referring to claims 3 and 7: Both the admitted prior art and Sato disclose the linear method (figure 13, step 207), which does not change the priority associated with each bus master.

Referring to claims 4 and 8: Both the admitted prior art and Sato disclose the round robin algorithm (figure 13, step 211); wherein the round robin grants the bus to each request in turn, and moves the priority of the next bus request to the highest. Thus, the admitted prior art and Sato disclose a period of the periodic change is the time period corresponding to when the bus master grant signal of the highest priority is output.

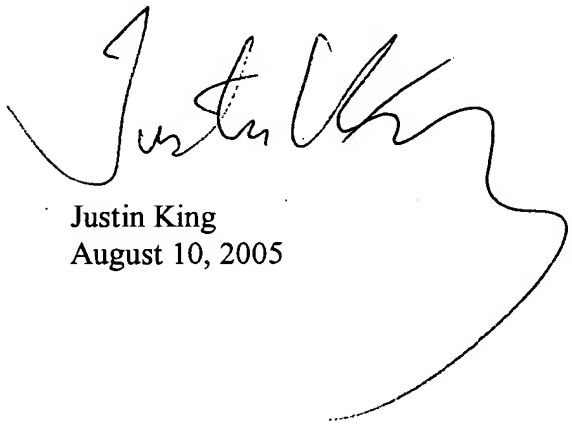
Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin I. King whose telephone number is 571-272-3628. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571-272-3632 or on the central telephone number, (571) 272-2100. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at http://www.uspto.gov/ebc/index.html or 1-866-217-9197 for information on this policy. Requests

to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.



Justin King
August 10, 2005